

# Claims

- [c1] A bioinformatically detectable novel gene encoding substantially pure DNA wherein:
- RNA encoded by said bioinformatically detectable novel gene is about 18 to about 24 nucleotides in length, and originates from an RNA precursor, which RNA precursor is about 50 to about 120 nucleotides in length;
  - a nucleotide sequence of a first half of said RNA precursor is a partial inversed-reversed sequence of a nucleotide sequence of a second half thereof;
  - a nucleotide sequence of said RNA encoded by said novel gene is a partial inversed-reversed sequence of a nucleotide sequence of a binding site associated with at least one target gene;
  - said novel gene cannot be detected by either of the following:
    - a visually discernable whole body phenotype; and
    - detection of 99.9% of RNA species shorter than 25 nucleotides expressed in a tissue sample; and
    - a function of said novel gene is bioinformatically deducible.
- [c2] A bioinformatically detectable novel gene encoding sub-

stantially pure DNA wherein:

RNA encoded by said bioinformatically detectable novel gene comprises a plurality of RNA sections, each of said RNA sections being about 50 to about 120 nucleotides in length, and comprising an RNA segment, which RNA segment is about 18 to about 24 nucleotides in length; a nucleotide sequence of a first half of each of said RNA sections encoded by said novel gene is a partial inverted-reversed sequence of nucleotide sequence of a second half thereof;

a nucleotide sequence of each of said RNA segments encoded by said novel gene is a partial inverted-reversed sequence of the nucleotide sequence of a binding site associated with at least one target gene; and

a function of said novel gene is bioinformatically deducible from the following data elements: said nucleotide sequence of said RNA encoded by said novel gene, a nucleotide sequence of said at least one target gene, and function of said at least one target gene.

[c3] A bioinformatically detectable novel gene encoding substantially pure DNA wherein:

RNA encoded by said bioinformatically detectable novel gene is about 18 to about 24 nucleotides in length, and originates from an RNA precursor, which RNA precursor is about 50 to about 120 nucleotides in length;

a nucleotide sequence of a first half of said RNA precursor is a partial inversed-reversed sequence of a nucleotide sequence of a second half thereof;  
a nucleotide sequence of said RNA encoded by said novel gene is a partial inversed-reversed sequence of a nucleotide sequence of a binding site associated with at least one target gene;  
a function of said novel gene is modulation of expression of said at least one target gene; and  
said at least one target gene does not encode a protein.

[c4] A bioinformatically detectable novel gene encoding substantially pure DNA wherein:  
said bioinformatically detectable novel gene does not encode a protein;  
RNA encoded by said bioinformatically detectable novel gene is maternally transferred by a cell to at least one daughter cell of said cell;  
a function of said novel gene comprises modulation of a cell type of said daughter cell; and  
said modulation is bioinformatically deducible.

[c5] A bioinformatically detectable novel gene encoding substantially pure DNA wherein:  
said bioinformatically detectable novel gene does not encode a protein;  
a function of said novel gene is promotion of expression

of said at least one target gene; and  
said at least one target gene is bioinformatically deducible.

[c6] A bioinformatically detectable novel gene according to claim 1 and wherein said function of said novel gene is bioinformatically deducible from the following data elements:

said nucleotide sequence of said RNA encoded by said bioinformatically detectable novel gene,  
a nucleotide sequence of said at least one target gene;  
and  
a function of said at least one target gene. [Claim Reference]

[c7] A bioinformatically detectable novel gene according to claim 1 and wherein said RNA encoded by said novel gene complementarily binds said binding site associated with said at least one target gene, thereby modulating expression of said at least one target gene. [Claim Reference]

[c8] A bioinformatically detectable novel gene according to claim 1 and wherein:  
said binding site associated with at least one target gene is located in an untranslated region of RNA encoded by said at least one target gene. [Claim Reference]

- [c9] A bioinformatically detectable novel gene according to claim 7 and wherein:  
said function of said novel gene is selective inhibition of translation of said at least one target gene, which selective inhibition comprises complementary hybridization of said RNA encoded by said novel gene to said binding site. [Claim Reference]
- [c10] A vector comprising the DNA of claim 1. [Claim Reference]
- [c11] A method of selectively inhibiting translation of at least one gene, comprising introducing the vector of claim 10 into a cell. [Claim Reference]
- [c12] A method according to claim 11 and wherein said introducing comprises utilizing RNAi pathway. [Claim Reference]
- [c13] A gene expression inhibition system comprising:  
the vector of claim 10; and  
a vector inserter, functional to insert said vector of claim 10 into a cell, thereby selectively inhibiting translation of at least one gene. [Claim Reference]
- [c14] A probe comprising the DNA of claim 1. [Claim Reference]

[c15] A method of selectively detecting expression of at least one gene, comprising using the probe of claim 14.  
[Claim Reference]

[c16] A gene expression detection system comprising:  
the probe of claim 14; and  
a gene expression detector functional to selectively detect expression of at least one gene. [Claim Reference]